

ABSTRACT OF THE DISCLOSURE

A light-emitting device with reduced lattice mismatch. The light-emitting device comprises a substrate having a first lattice constant, a first buffer multilayer deposited on the substrate, a second buffer multilayer deposited on the first buffer multilayer, and a GaN base epitaxial layer deposited on the second buffer multilayer. The lattice constant of the first buffer multilayer ranges from the first lattice constant at the bottom of the first buffer multilayer to a second lattice constant at the top of the first buffer multilayer. The lattice constant of the second buffer multilayer ranges from the second lattice constant at the bottom of the second buffer multilayer to a third lattice constant at the top of the second buffer multilayer.